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(54) Child safety seat with belt stowage

(57) A child safety seat for use in a motor vehicle has a seat body (10) comprising a seat portion (12) and a backrest (18), adapted to be positioned on a vehicle seat in a rearward facing mode for use by an infant and in a forward facing mode for use by an older child who is restrained on the safety seat body (10) by a vehicle seat belt. The seat body (10) is fitted with a child harness having shoulder and lap straps (34, 36) secured respective anchorage points on the seat body (10). As shown in Figure 3, the seat body (10) has stowage means comprising a flap (54) for containing said child harness with the straps (34, 36) thereof secured to their respective anchorage points (30, 32, 78, 80) when the seat body (10) is used in a forward facing mode by an older child who is restrained on the safety seat body (10) by a vehicle seat belt. A further flap (74) covers a recess in which the crotch webbing and buckle are stored.

Fig.3.

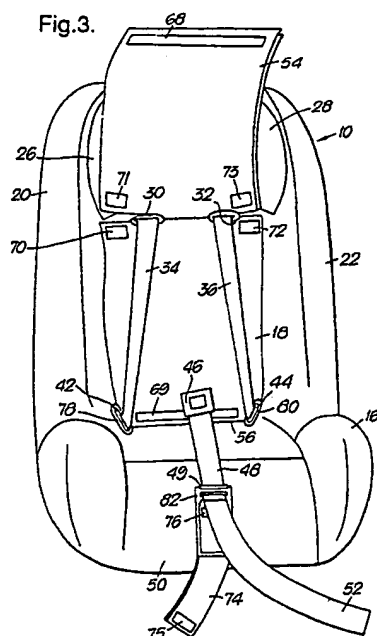
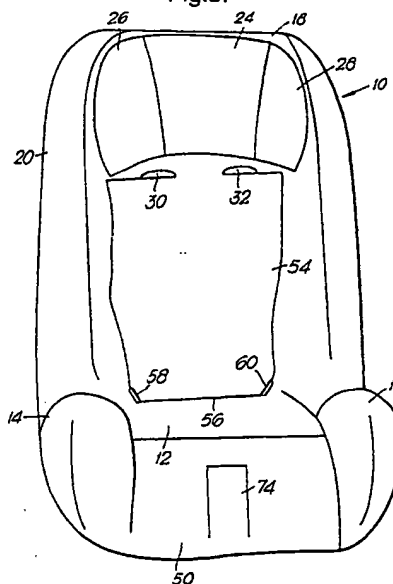


Fig.5.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

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Fig.1.

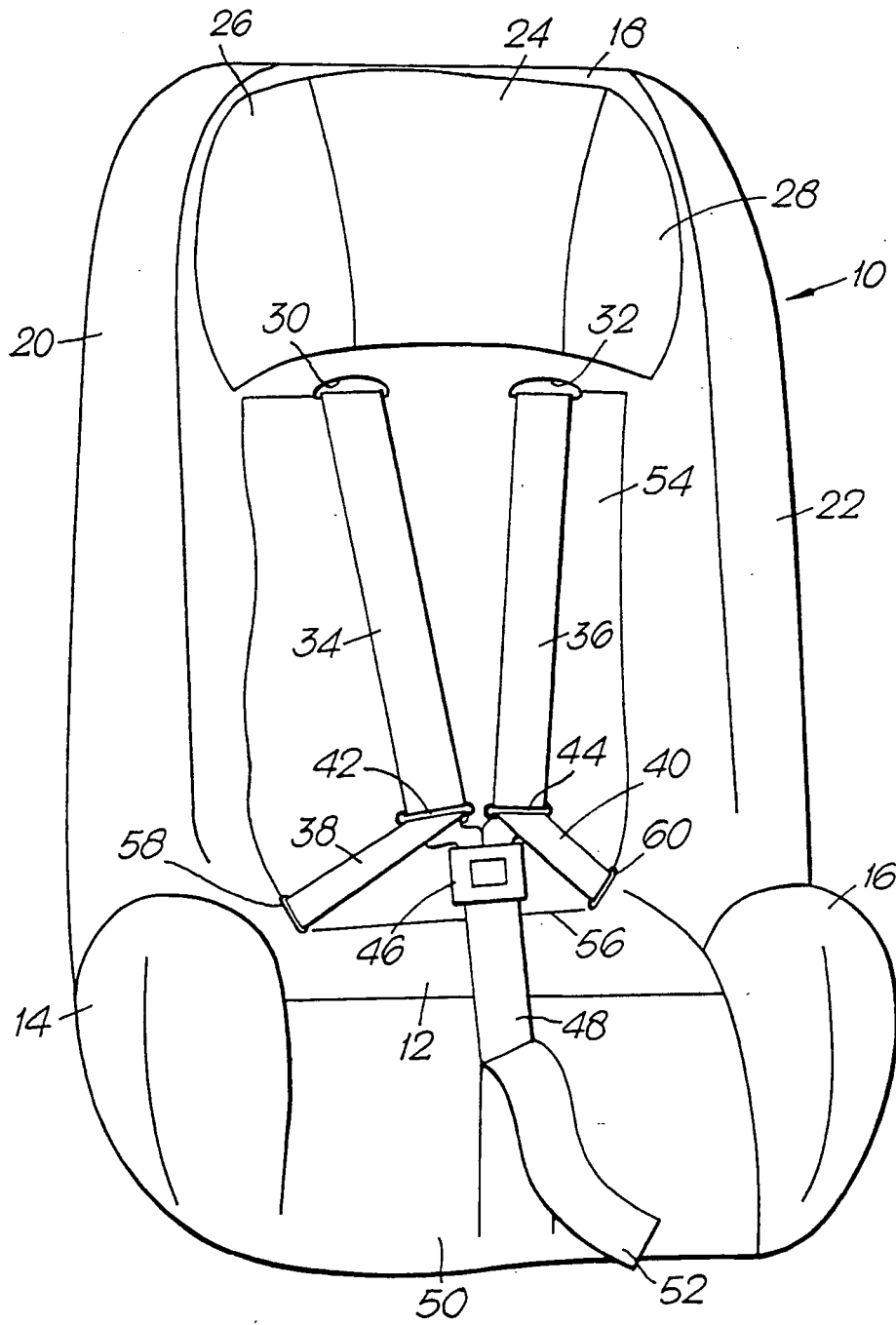


Fig.2.

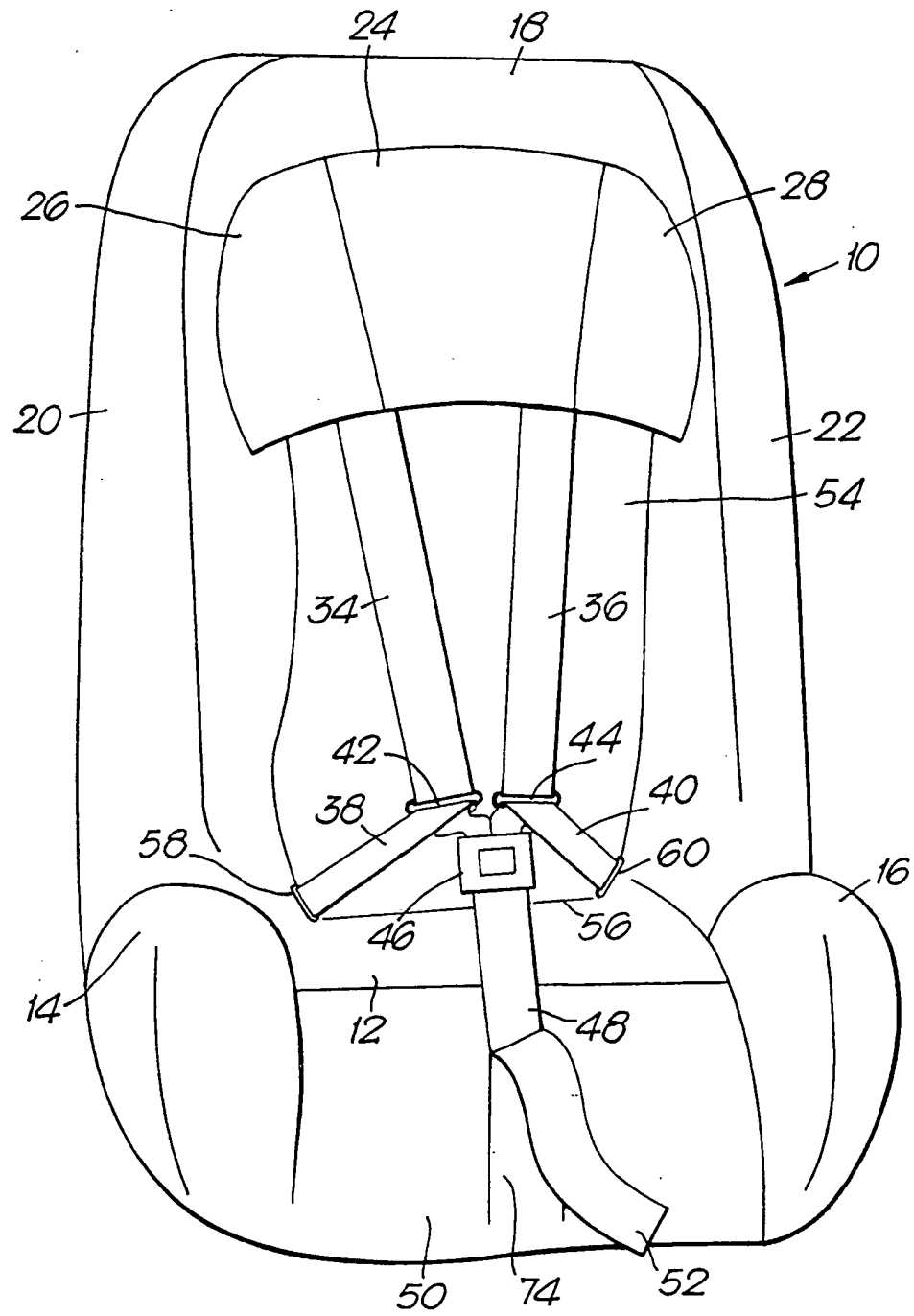


Fig.3.

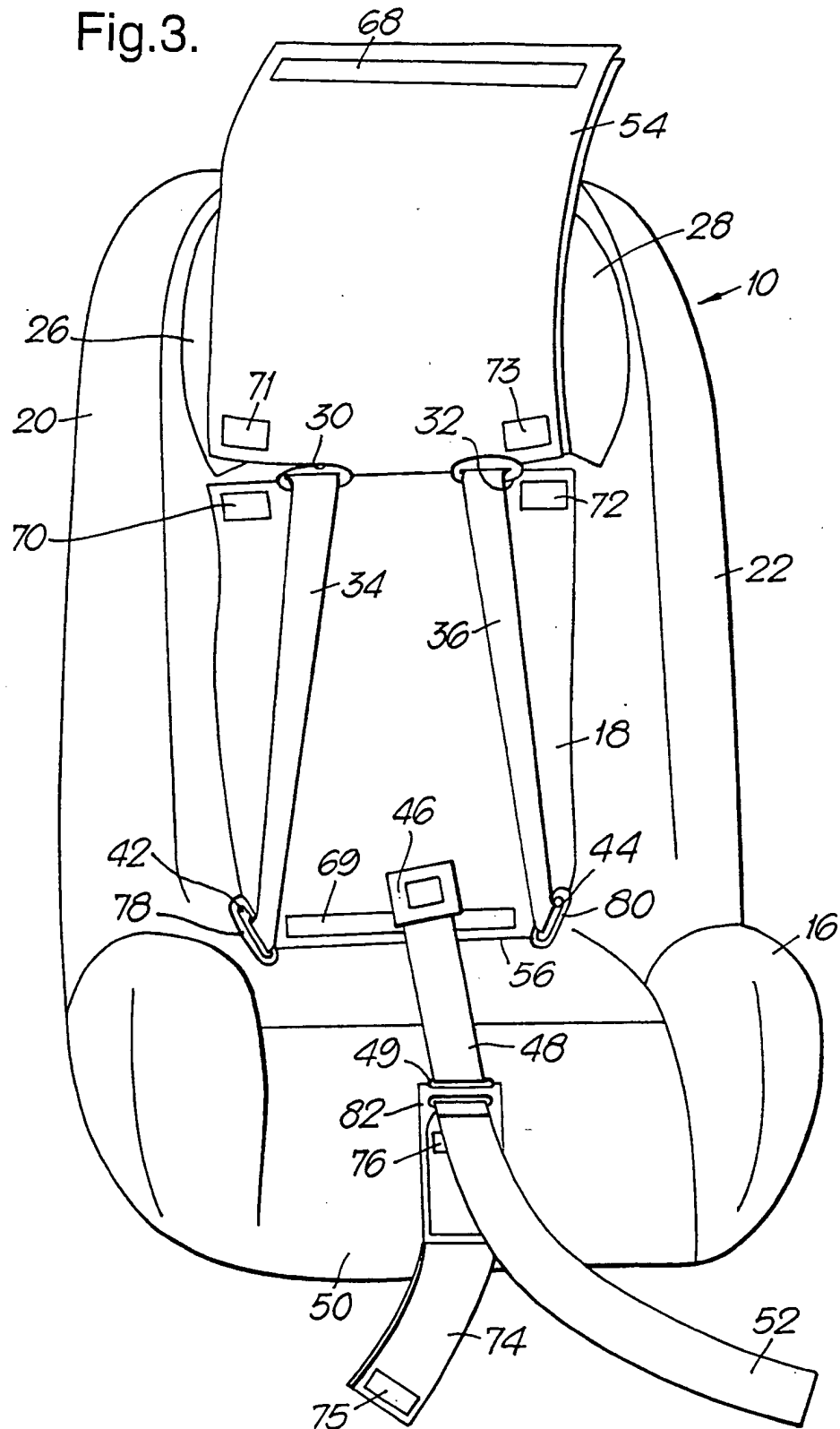


Fig.4.

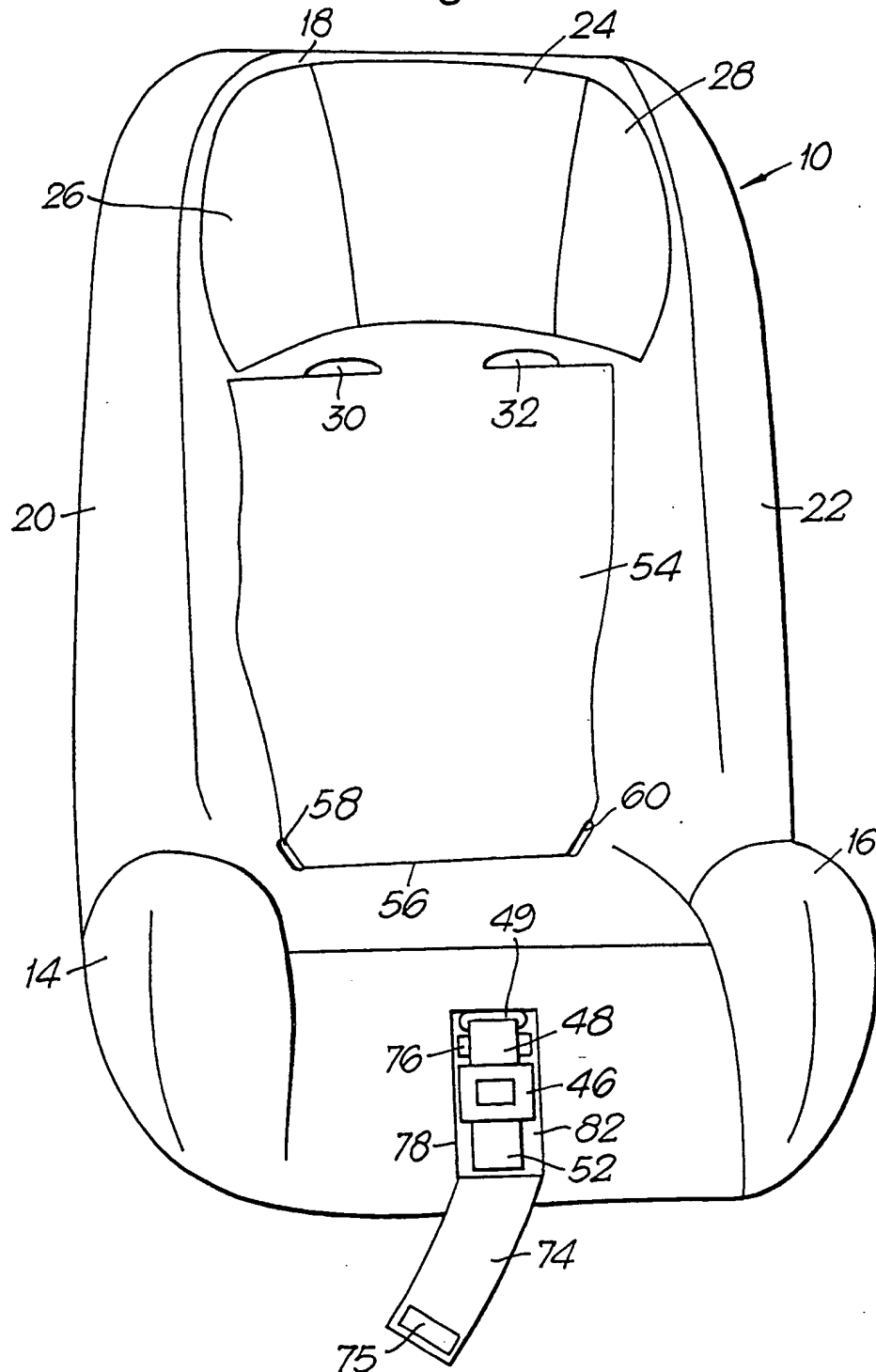


Fig.4.

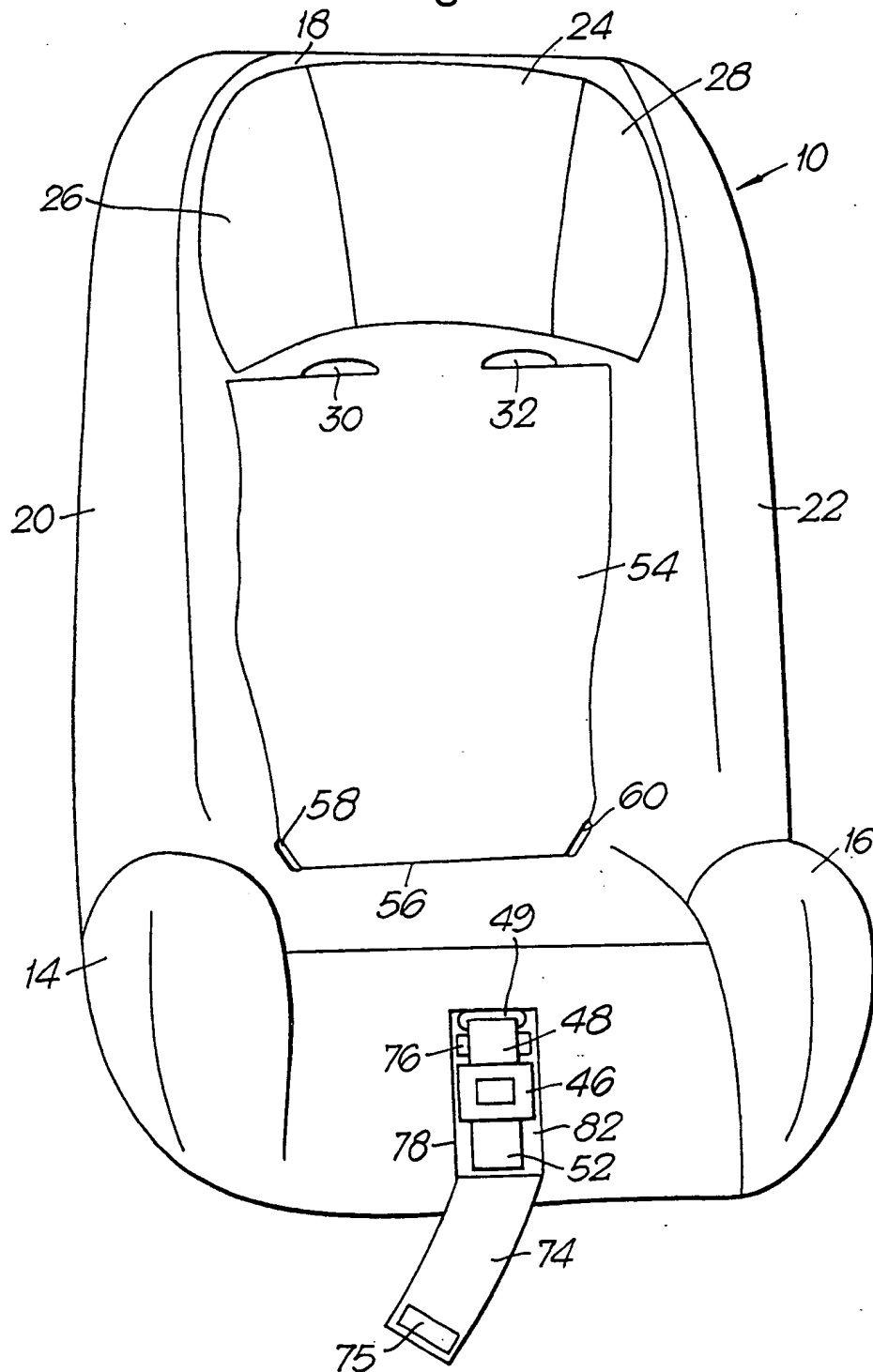
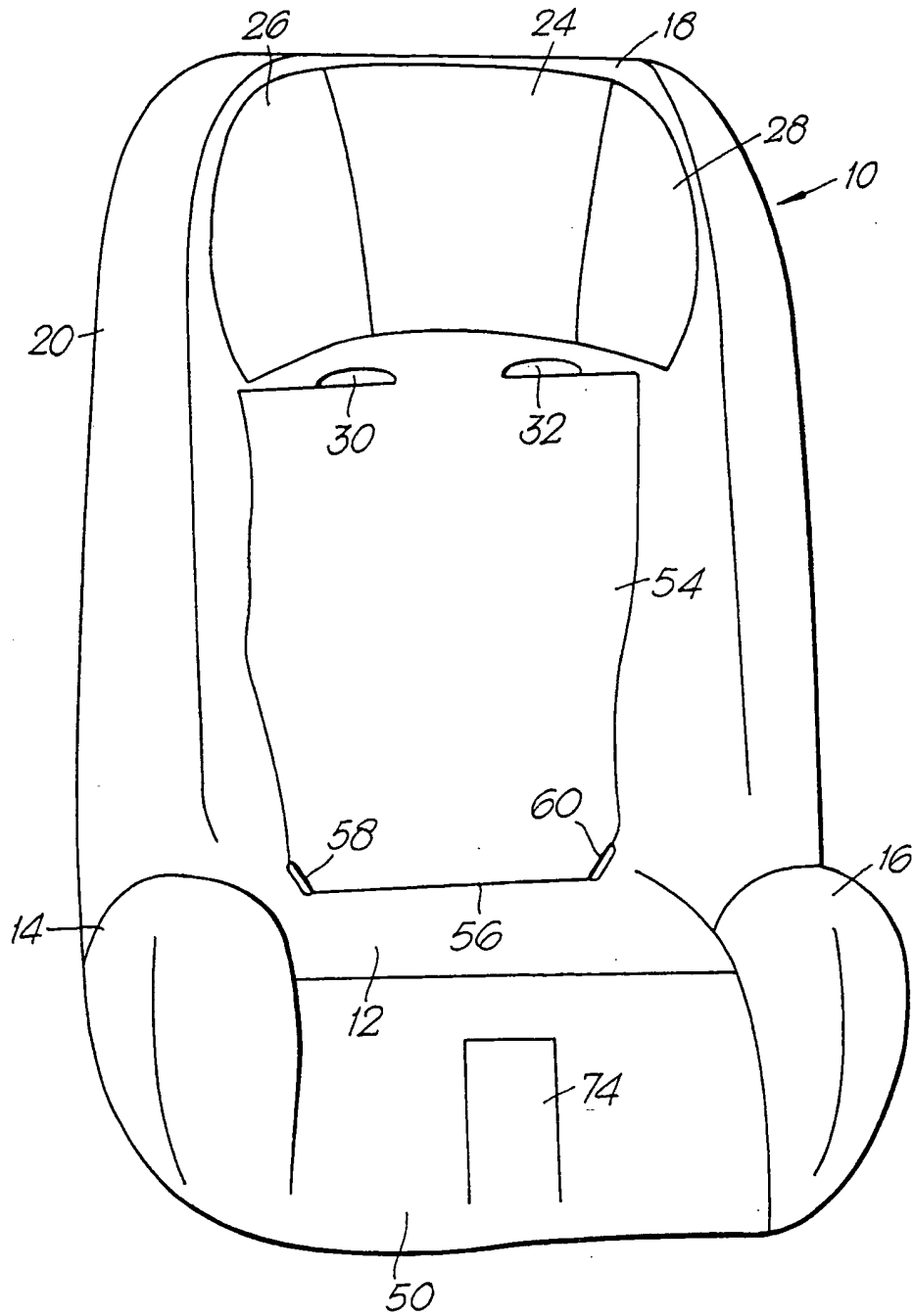


Fig.5.



CHILD SAFETY SEAT

This invention relates to a child safety seat for use in a motor vehicle of the type which can be used in a rearward facing mode by an infant and in a forward facing mode by an older child.

EP-A-0326265 discloses a child's safety seat for use in a rearward facing mode in which a child user is restrained on the safety seat by the vehicle seat belt. When a seat of this type is used in the rearward facing mode, the vehicle seat belt cannot be used to restrain a child occupant in the seat and it is necessary to provide a separate harness for the child which is secured to the safety seat. It is also desirable that when a forward facing child seat is used by a relatively young child, a separate harness having two shoulder straps should be provided.

In a known child safety seat of this type, it is necessary to remove the child harness from the safety seat when the latter is to be used in the forward facing mode. In known forward facing child safety seats having separate harnesses for the child, it is usual to provide a plurality of slots on each side of the back portion at differing heights so that the shoulder straps may be removed from one set of slots and refitted in another in order to provide height adjustment. Both of these arrangements are subject to the risk that a user may refit the harness incorrectly. The present invention aims to provide a seat which is not subject to this disadvantage.

According to one aspect of the invention, a child seat of the type described in EP-A-0326265 is provided with a child harness having shoulder straps secured to anchorage points on the seat back behind the sliding headrest.

According to another aspect of the invention, a child seat of the type described in EP-A-0326265 is provided with a child harness having lap straps extending from anchorage points located within recesses within the seat, each lap strap being permanently attached to part of

a buckle and each recess being large enough to accommodate said buckle part.

5 Preferably, the seat is fitted with a cover having an opening flap in its backrest portion so arranged that it can be opened and the lap and shoulder straps of the child harness to be stowed behind it. If the child harness is provided with a crotch strap, a separate flap may be provided in the vicinity of the crotch strap anchorage behind which the crotch strap may be stowed.

10 An embodiment of the invention will now be described, by way of example with reference to the accompanying drawings, in which:

15 Figure 1 is a front view of a child safety seat in accordance with the invention, with its child harness set up for use and its headrest in its highest position;

 Figure 2 is a front view similar to Figure 1 with the headrest in its lowest position;

20 Figure 3 is a front view of the seat shown in Figures 1 and 2, with the cover open and the harness partly stowed;

 Figure 4 is a front view similar to Figure 1 to 3, with part of the cover closed and another part open, and the harness fully stowed; and

25 Figure 5 is a front view similar to Figure 1 to 4, with the seat configured for use in conjunction with a vehicle seat belt as described in EP-A-0326265.

30 Figures 1 and 2 show a child safety seat comprising a seat body having a seat portion 12 with side walls 14 and 16 forming armrests and a backrest 18 with side walls 20 and 22. A headrest 24 having side wings 26 and 28 is slidably mounted on the upper part of the backrest 18 with the side wings 26 and 28 between the side walls 20 and 22.

35 The seat back 18 has two slots 30 and 32 just below the bottom of the headrest 24 (when the latter is in its uppermost position as shown in Figure 1) through which shoulder straps 34

and 36 project from behind the seat back 18. Each of the shoulder straps 34 and 36 is formed from a continuous lengths of webbing with a corresponding lap strap 38, 40 which runs freely through a loop in a respective buckle tongue 42, 44. The tongues 42 and 44 engage in a buckle body 46 which is secured to one end of a crotch strap 48 which has its bottom end fixedly secured to an anchorage in the front face 50 of the seat portion 12.

Behind the seat back 18, the shoulder straps 34 and 36 are connected to a common strap 52, the free end of which extends through a belt adjuster and out through a slot in the front face 50 of the seat portion 12 just below the anchorage for the crotch strap 48. This permits adjustment of the length of the shoulder straps 34 and 36 as described in AU-B-503602.

As shown in Figure 2, the headrest 24 can be slid downwardly to a position in which its bottom edge is below the slots 30 and 32, thus providing adjustment of the effective height of the tops of the shoulder straps 34 and 36.

When in the configuration shown in Figure 1 or Figure 2, or with the headrest 24 in any intermediate position, the seat may be used either in the forward facing mode or in the rearward facing mode. The method by which the seat is secured in position in a vehicle in either of these modes does not form part of the present invention and will not be described in detail.

When the seat is to be converted for use in a rearward facing mode in which a child user is restrained on the seat by the vehicle seat belt, a panel 54 in the seat cover is opened as shown in Figure 3. The panel 54 is secured to the rest of the seat cover and, when closed, extends downwards to a line 56 joining openings 58 and 60 (Figures 1 and 2) for the lap straps 38 and 40. When closed, the panel 54 is held in place by strips 68-73 formed of touch-and-close fastener material such as Velcro (a registered trade mark). A similar flap 74, which is

fixed to the rest of the cover at its lower edge, extends downwardly from the anchorage point for the crotch strap 48. When closed, the flap 74 is secured by strips of touch-and-close fastener material 75 and 76 so as to cover
5 a recess 78 in the seat.

After the panels 54 and 74 have been opened, the two buckle tongues 42 and 44 are inserted into recesses 78 and 80 surrounding the anchorages for the lap straps 38 and 40. Next the common strap 52 is pulled out to its maximum
10 extent so that the shoulder straps 34 and 36 extend in a straight path between the recesses 78 and 80 and the slots 30 and 32.

Referring to Figure 4, the next step is to return the flap 54 to its closed position, in which covers the
15 shoulder straps 34 and 36, together with the recesses 78 and 80 in which the buckle tongues 42 and 44 are contained. The panel 54 is held in its closed position by the touch-and-close fasteners 68-73, as described above. The common strap 52 and crotch strap 48 are then folded up and
20 inserted into the recess 78 behind the panel 74 and the buckle body 46 is inserted on top of the folded-up straps, the width of the recess 78 being such that the buckle can be wedged in place.

Finally, the flap 74 is closed, as illustrated in
25 Figure 5, and the seat is ready to be used in a forward facing mode with the child user restrained by the vehicle safety belt.

It should be understood that the various strips of touch-and-close fastener are shown in the drawings by way
30 of example and additional strips of such material may be provided if desired.

CLAIMS

1. A child safety seat for use in a motor vehicle having a seat body comprising a seat portion and a backrest, adapted to be positioned on a vehicle seat in a rearward facing mode for use by an infant and in a forward facing mode for use by an older child who is restrained on the safety seat body by a vehicle seat belt, characterised by a child harness having shoulder straps and lap straps secured respective anchorage points on the seat body, the seat body having stowage means for containing said child harness with the straps thereof secured to their respective anchorage points when the seat body is in said forward facing mode.
2. A child safety seat according to claim 1, wherein a head rest is mounted on the backrest by means permitting adjustment of the distance between the head rest and the seat portion, and shoulder straps secured to anchorage points on the seat back behind the head rest.
3. A child safety seat according to claim 1 or 2, wherein the anchorage points for the lap straps are located in recesses within the seat, each lap strap being permanently attached to part of a buckle and each recess being large enough to accommodate said buckle part.
4. A child safety seat according to claim 1, 2 or 3, wherein the seat body is fitted with a seat cover having an opening panel so arranged that it can be opened and the straps of the child harness stowed behind it.
5. A child safety seat according to claim 4, wherein the child harness includes a crotch strap attached to an anchorage point located in a recess in the seat body, and the seat cover has an flap for covering said recess with the crotch strap stowed therein.
6. A child safety seat for use in a motor vehicle, substantially as hereinbefore described with reference to the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under Section 17
(The Search report)

Application number
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Relevant Technical Fields

(i) UK Cl (Ed.M) A4L (LAAR, LAAS, LAH, LBEJ)

(ii) Int Cl (Ed.5) B60N 2/26, 2/28

Search Examiner
JOHN WILSON

Date of completion of Search
1 DECEMBER 1994

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASE: EDOC, WPI

Documents considered relevant following a search in respect of Claims :-
1 TO 6

Categories of documents

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| <p>X: Document indicating lack of novelty or of inventive step.</p> <p>Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.</p> <p>A: Document indicating technological background and/or state of the art.</p> | <p>P: Document published on or after the declared priority date but before the filing date of the present application.</p> <p>E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.</p> <p>&: Member of the same patent family; corresponding document.</p> |
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Category	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2239791 A (IKEDA BUSSAN) see the figures and Claim 1	1 at least

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).